ZEISS

West Germany

Carl Zeiss
D-7082 Oberkochen

S22 Floor Stand

Operating Instructions

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Important for safety:

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The following is essential for the user:

- To ensure safe operation, make yourself familiar with the instrument.
- Read operating instructions carefully before putting the instrument into operation.
- Keep operating manual within easy reach at all times.
- Do not operate the instruments in explosion-risk areas.
- The instruments should be operated by trained personnel only.
- Ensure that the equipment is complete and properly functioning before actual use.
- Go through the check list on page 10.
- Operate equipment only with the instruments specified in the manual.
- Check whether the voltage set on the stand is the same as that used in your country.
- Implement accident-prevention provisions in compliance with the statutory regulations at regular intervals.
- Alterations and repairs of electro-medical equipment may only be carried out by the manufacturer or persons expressly authorized to do so.
- When assembling the stand, make sure that the upper part (item 1, Fig. 1) of the stand points in the direction of the long wing of the base as shown in Fig. 1.
- Make sure that the ventilation slots (item 4, Fig. 2) are not covered.
- Always disconnect power plug before repairing any electrical defect (see troubleshooting table on page 12).
- For transport, the arms must be folded in as far as they will go and safely clamped.

Emergencies

The following steps must be taken if

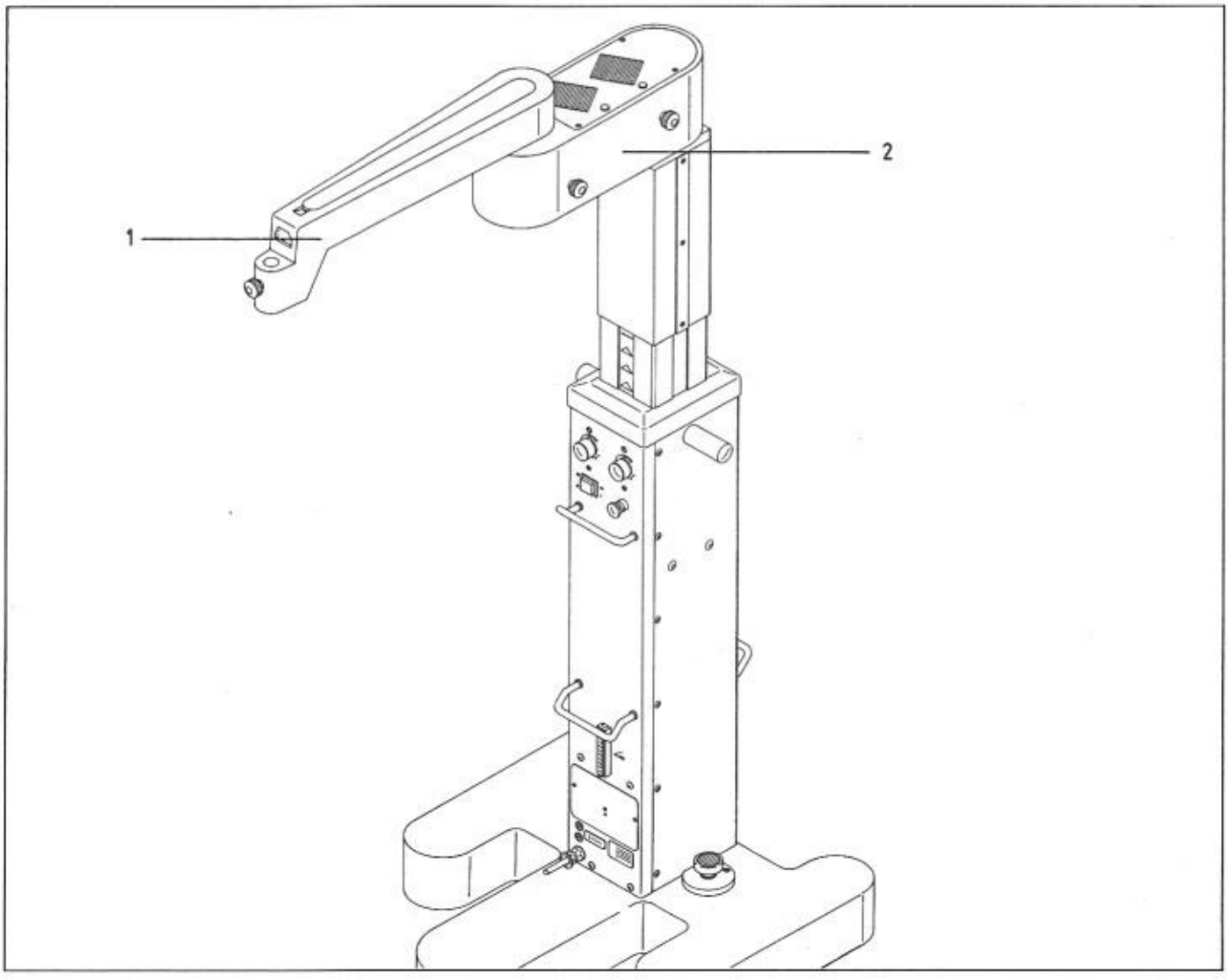
- smoke comes from the stand:
  pull out power plug!
- column moves downwards by itself:
  press red stop button on the stand.
- the illumination fails:
  insert spare lamp module.

General

The S22 Floor Stand allows the connection of a motorized operation microscope and is particularly suitable for use in ophthalmic surgery.
Equipment weighing up to 19 kg can be mounted on the outer carrier arm (1). The inside of this arm accommodates the easily accessible FC light guides and power cables for the motorized functions of the microscope and the X-Y coupling.
The inner carrier arm (2) houses two lamp slide-in modules with one 12 V/100 W halogen bulb each for the supply of the fiber light guides. A spare lamp module is provided on the back of the stand.

The stand column can be vertically adjusted within a range of 200 mm (20 mm/s) using a foot or hand control panel. A stop button has been integrated in the front of the stand to enable immediate stopping of the column movement in an emergency.
The stand also provides two rotary knobs for controlling the brightness of the fiber illumination. One knob can be converted to control the brightnesss of the halogen bulb illumination of an instrument (e.g. surgical slit illuminator) connected to the pair of jacks inside the arm (1).

1



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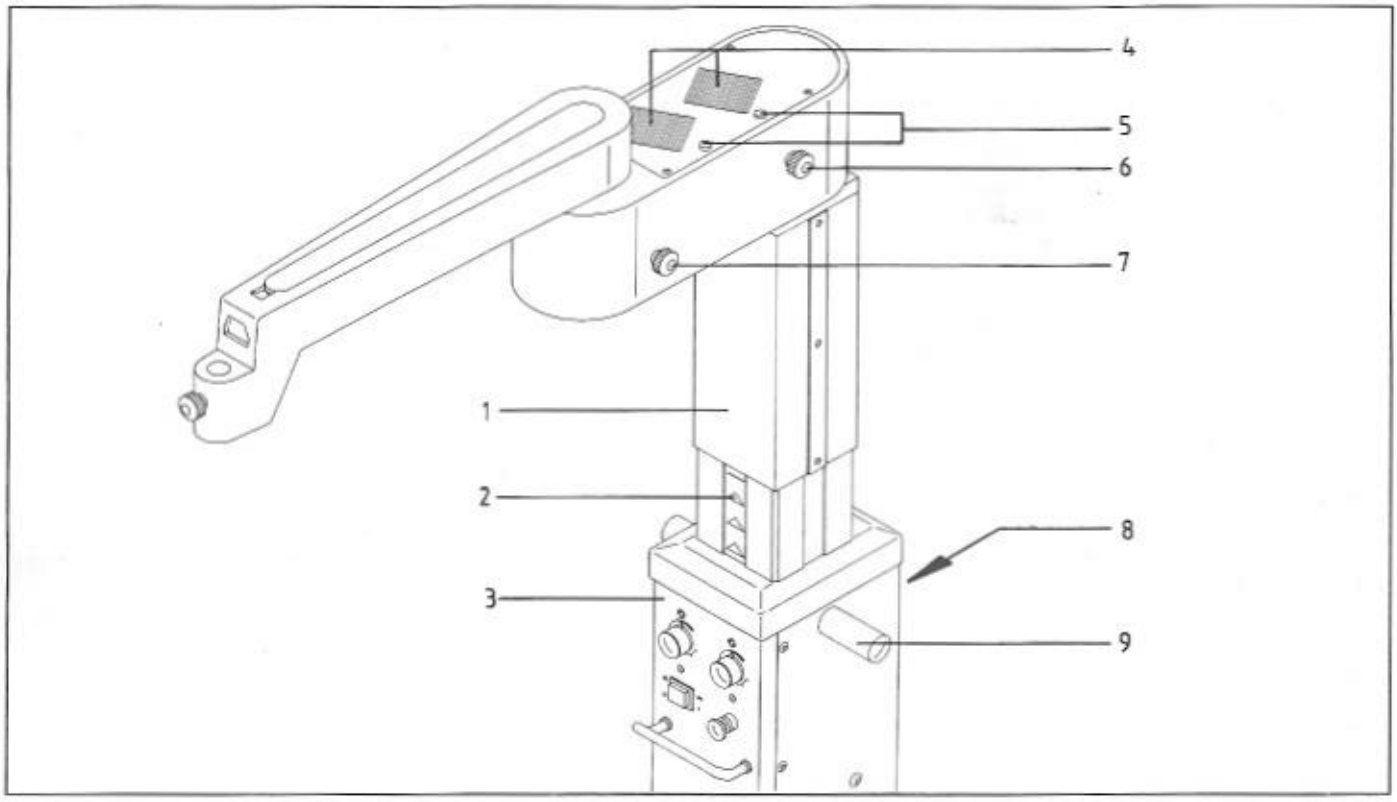

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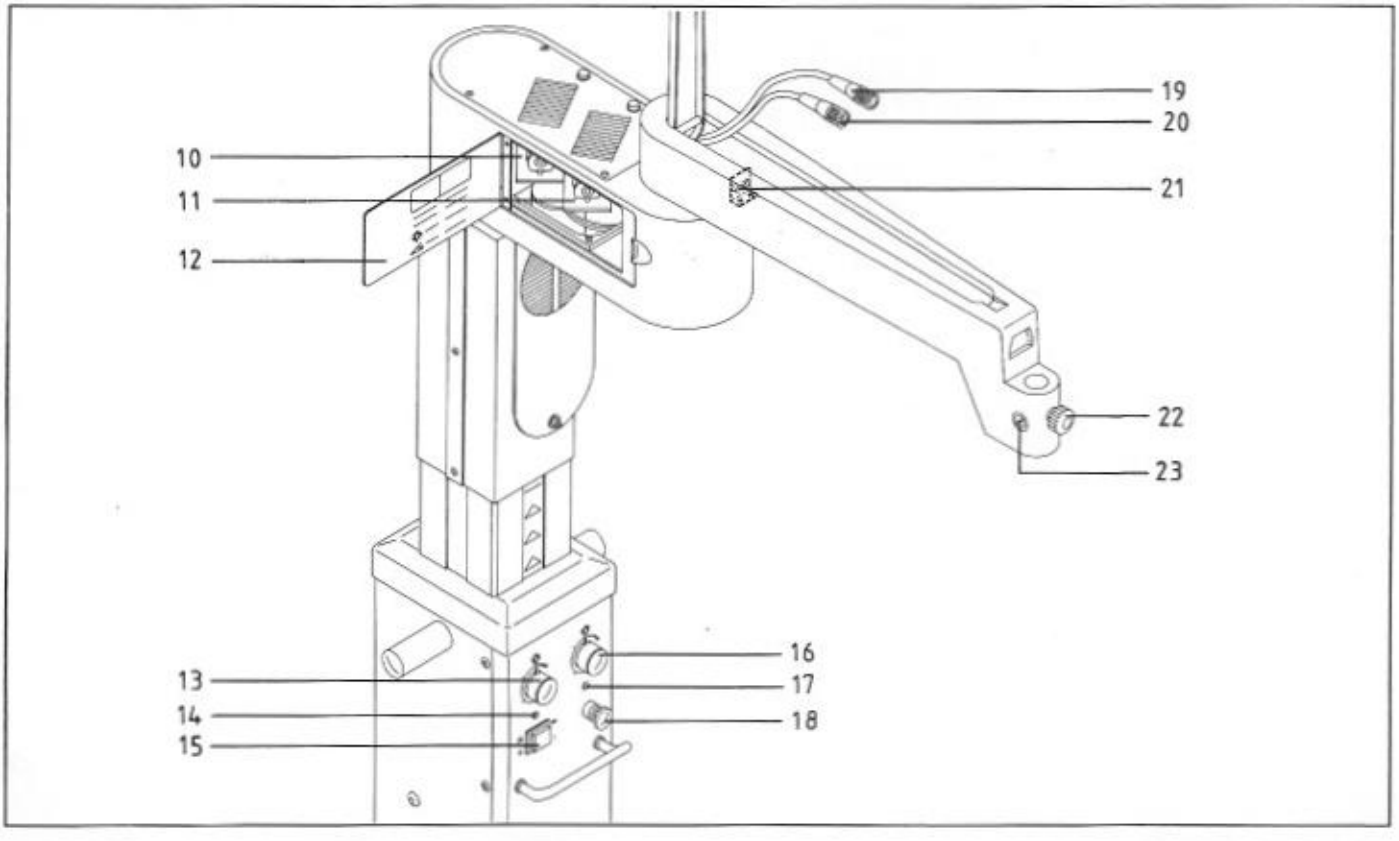


Controls

1 Upper part of stand.

2 Indicator scale for vertical travel.

3 Stand column. If requested by the surgeon, the column can be mounted rotated through 180°. The upper part of the stand must not be rotated for safety reasons (danger of toppling).

4 Ventilation grid. This must not be covered as the lamp modules could overheat and the lamps fail.

5 Thermal cutout buttons for the lamp modules. If a lamp module overheats, the power supply is interrupted. Eliminate the cause of overheating before pressing the thermal cutout button in again.

6 Knurled screw for locking the inner carrier arm and setting its motion resistance.

7 Knurled screw for locking the outer carrier arm and setting its motion resistance.

8 Spare lamp module. See also 10 and 11.

9 Handles for maneuvering the stand.

10 Lamp module for supplying the fiber illumination. The brightness is adjusted using knob (13). If a lamp fails, the module with the defective lamp can be easily changed for the spare lamp module (8). The lamp change is described on page 11. A filter can be accommodated in the lamp module (described on page 11).

11 Lamp module for supplying the fiber illumination. The brightness is adjusted using knob (16). If a lamp fails, the module with the defective lamp can be easily changed for the spare lamp module (8). The lamp change is described on page 11. A filter can be accommodated in the lamp module (described on page 11).

12 Door of lamp compartment. A key to the types of illumination available and their operation can be found on the inside of the door. Use selectors (14) and (17) to set the various functions.
F = fiber illumination
H = halogen bulb illumination
Knob (13) and/or knob (16) are used to switch the illumination ON/OFF and to control the brightness.
A foot or hand control panel is used to switch the illumination ON/OFF. Brightness is controlled with knob (13) and/or (16).

13 Knob for switching on and controlling the brightness of the fiber or halogen bulb illumination. If fiber illumination is used, this knob controls lamp module (10).

14 A selector is located under this cap. The possible settings are shown on the inside of door (12). Use a screwdriver for the setting.

15 Main ON/OFF switch with indicator light.

16 Knob for switching on and controlling the brightness of the fiber illumination. This knob controls lamp module (11).

17 A selector is located under this cap. The possible settings are shown on the inside of door (12). Use a screwdriver for the setting.

18 Stop button for switching off the motorized movement of the upper part of the stand in an emergency. By turning the button in the direction of the arrow, the lock is released and the stand is again ready for operation.

19 Plug (7-pole) for the electrical supply of an X-Y coupling.

20 Plug (5-pole) for the electrical supply of the focus/zoom action of the operation microscope.

21 Pair of jacks for connection of a halogen bulb illumination system (e.g. for supply of a surgical slit illuminator).

22 Knurled screw for locking or releasing the OPMI carrier stem.

23 Safety screw. When mounting a microscope or a coupling, this screw must be screwed in and tightened firmly.

1 Bracket for winding up the power cable.

2 Connector for foot or hand control panel.

3 Cover plate. The fuses for the equipment are behind this plate. A key for the allocation of the fuses is shown on the inside of the cover plate.

4 Voltage indicator disk.
Note: the stand is adjusted in the factory to the customer's voltage. However, you should check this in any case by reading off the voltage shown on disk (4). If they do not correspond, the disk must be reset and the fuses (5) changed, if necessary.

5 Fuses. These become accessible after unscrewing the caps. The fuse ratings are dependent on the line voltage available. See plate (11) for rating to be used.

6 Power cable.

7 Screws for mounting a tray.

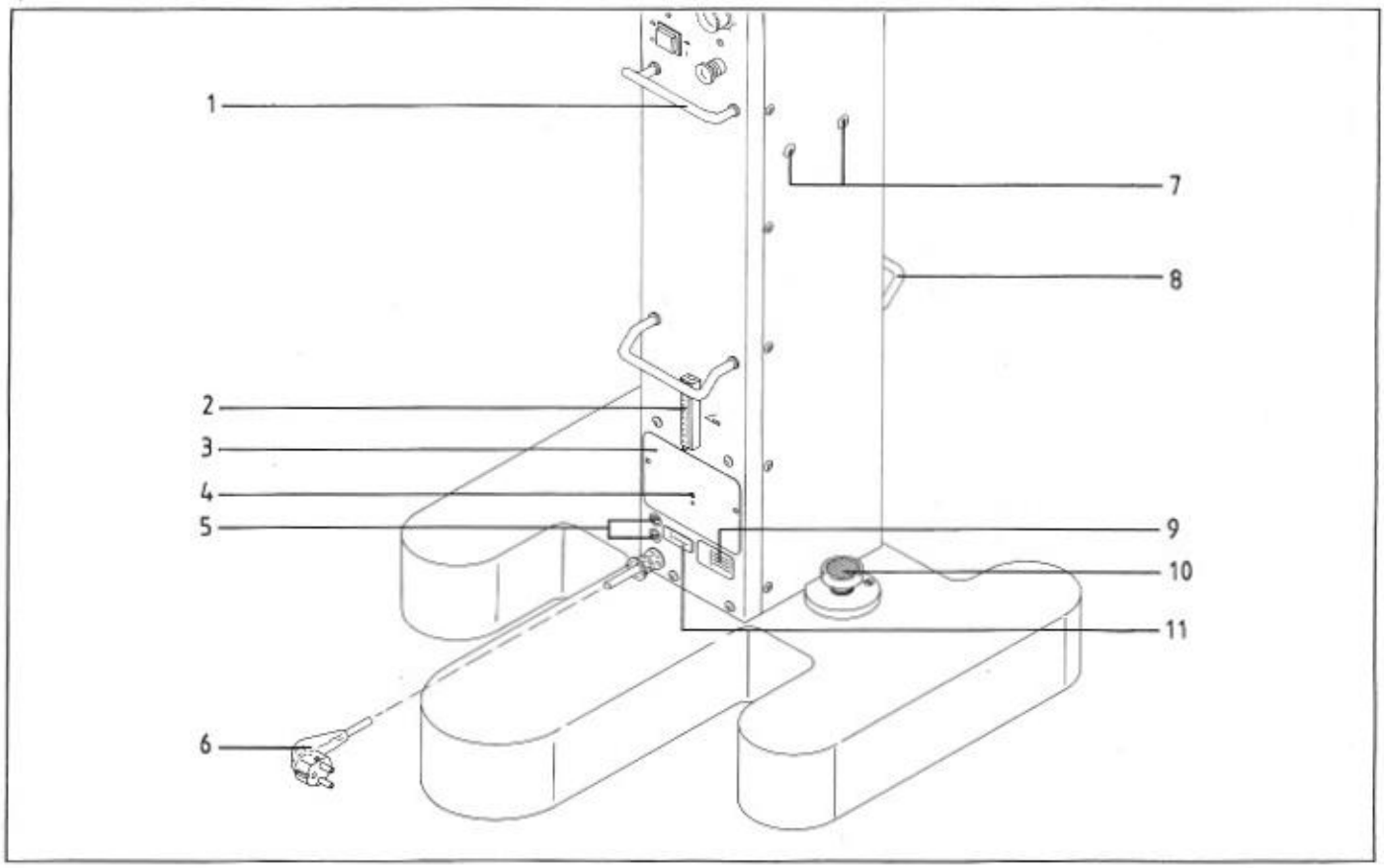
8 Bracket for hanging up the foot control panel.

9 Power rating plate.

10 Locks for holding the stand in position. By stepping on the plates below the locks, the locks are released.

11 Plate specifying the fuse ratings for the various line voltages.

4



Note: read "Notes on safety" before putting the equipment into operation.

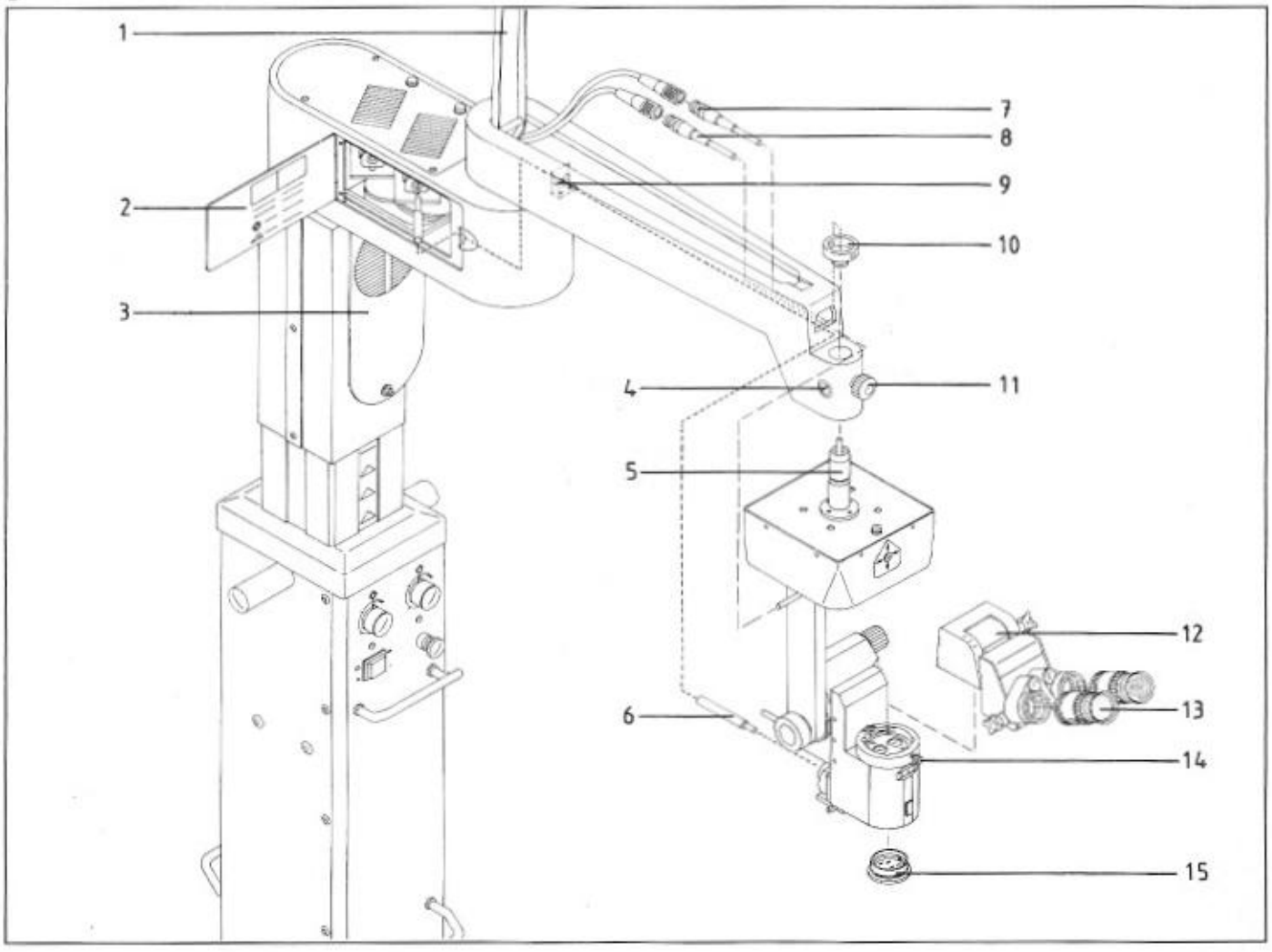
Mounting the microscope equipment

Despite the different microscope versions, mounting the microscope on the stand is virtually identical in each case. The following describes how an OPMI 6 S FR XY is mounted on the S22 Floor Stand.

- Unscrew safety screw (4).
- Feed plug (7) through the reception bore of the arm and securing screw (10).
- Insert microscope carrier stem (5) into the reception bore and tighten securing screw (10) firmly using a tool (e.g. screwdriver). Grease stem before insertion.
- Screw safety screw (4) firmly in again.
- Lock operation microscope using knurled screw (11).
- Screw objective (15) into the microscope body.
- Place binocular tube (12) on microscope body and secure with screw (14).
- Screw eyepieces (13) on to the straight tube.
- Open covers (1), (2) and (3).
- Plug FC light guide (6) with the ☼ symbol into the lamp module and arrange as shown by the dashed line in Fig. 5.
- Plug FC light guide into the sleeve of the operation microscope and secure with the grub screw.
- Insert plug (7) into the 7-pole connector.
- Feed plug (8) from the microscope through the carrier arm and insert into the 5-pole connector.
- Arrange FC light guide (6) and cables (7) and (8) in the swivel arm so that only the length of cable necessary is hanging outside the arm.

Note: in instruments with halogen bulb illumination, e.g. the surgical slit illuminator, the instrument plug must be connected to the pair of jacks (9).

5



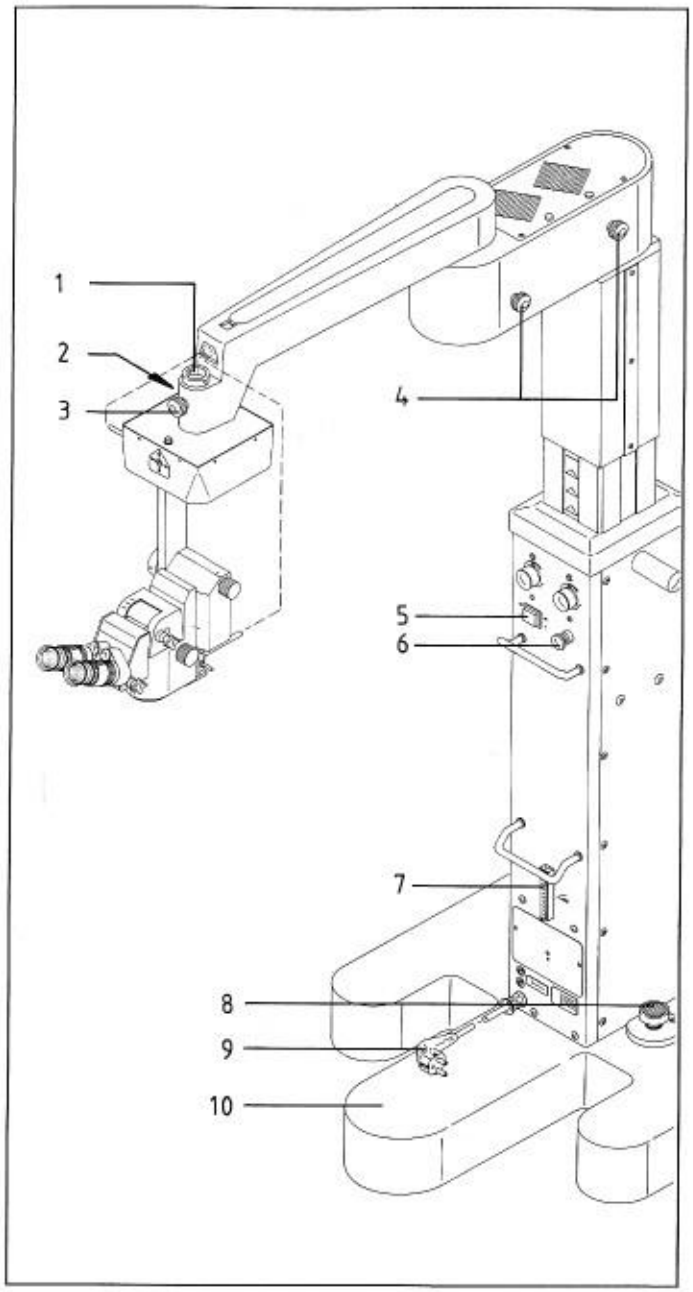
User check list

The following points must be checked before each operation (without patient):

- Make power connection with cable (9). See "Note" under point 4, page 8.
- Connect foot control panel (or hand control panel) to connector (7).
- Check whether locks (8) can be engaged and disengaged.
- Make sure that securing screws (1) and (2) are tightened firmly.
- Switch on main switch (5) on the stand.
- Check whether the lamps (including spare lamp) are working properly.
- Check whether power is supplied to the focusing and zoom systems and the X-Y coupling through their total adjustment ranges using a hand or foot control panel.
- Check motorized height adjustment of the column within the total range of travel.
- Check whether the emergency stop button is working. This button only influences the height adjustment of the column.
- Adjust the stand in such a way that wing (10) points towards the surgical field.
- Position operation microscope and tighten screw (3).
- Set motion resistance using knurled screws (4).
- Check optical image throughout the total magnification range.

Caution
If a function fails, do not use this unit any longer for safety reasons. If possible, eliminate the cause (see troubleshooting on page 12) or contact our service department.
If a function fails during surgery: try to remedy the situation using the troubleshooting table on page 12 or contact our service department.

6



Changing the lamp assembly

Note: if halogen lamp (1) fails during operation, the complete lamp module (3) should be changed for the spare lamp module (item 8, page 6).

For changing halogen lamp (1) itself, proceed as follows:

- Pull lamp out of ceramic socket (4) and remove from module (3).
- Insert new halogen lamp.
  Make sure that the centering lug (2) engages the recess in the module.
- Push ceramic socket (4) on to lamp base.

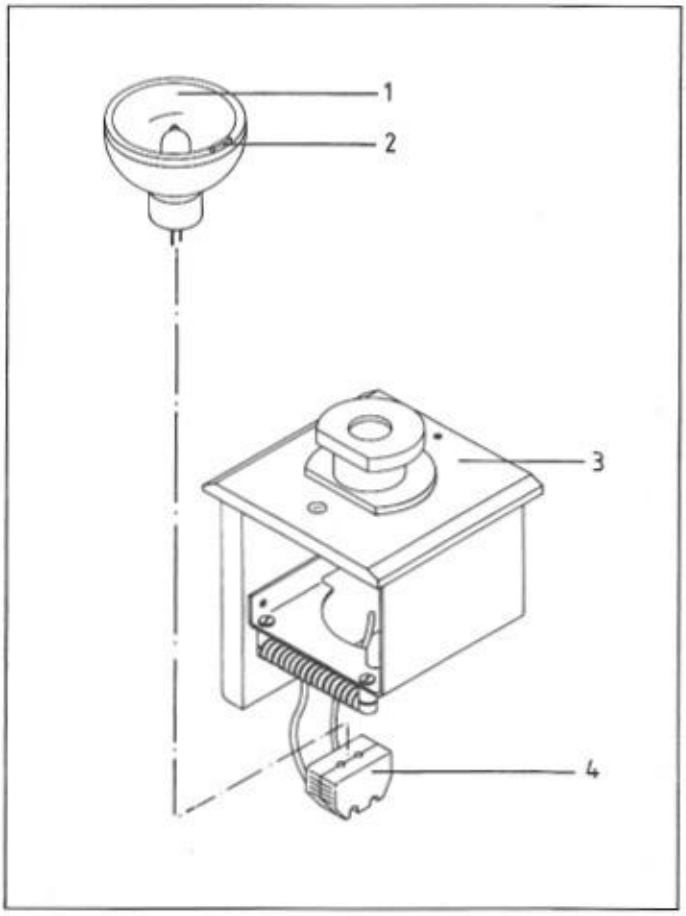
Mounting a filter

Lamp module (7) can be retrofitted with a filter.

For this, proceed as follows:

- Remove cap (5) from opening (6) in the lamp module.
- Push washers (9) and bushing (8) on to bolt (10).
- Push bolt (10) through opening (6).
- Push washer (4) and knob (3) on to bolt (10) and tighten with screw (2).
- Press cap (1) into opening of knob (3).

7



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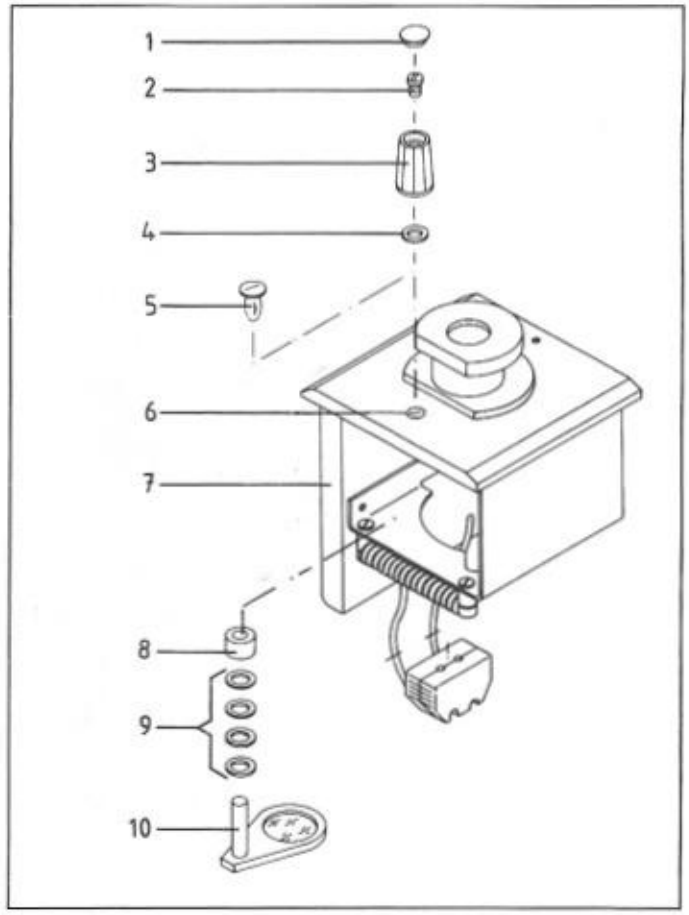

Troubleshooting table
Equipment: S22 Floor Stand with OPMI 6 S FR XY.

Malfunction	Possible cause	Remedy
No function at all	Main switch not pressed.	Press main switch. Green pilot light must come on.
	Defective fuses in stand.	Change power fuses.
	Power failure.	Contact in-house electrician.
	Failure of stand electronics	Contact service department
Zoom system not functioning	Incorrect connection of the foot or hand control panel	Check fit of connector
	Incorrect electrical connection in carrier arm	Insert plug into connector and secure with tapped ring
	Defective fuse in stand column	Remove plate (item 3, page 8) and insert new fuse
	Defective motor or control panel	Set magnification by hand (black knob on OPMI body) and contact service department
Focusing not functioning	Incorrect connection of the foot or hand control panel	Check fit of connector
	Incorrect electrical connection in carrier arm	Insert plug into connector and secure with tapped ring
	Defective fuse in stand column	Remove plate (item 3, page 8) and insert new fuse
	Defective motor or control panel	Focus object using the operating table or the column and contact service department
X-Y coupling not functioning	Incorrect connection of the foot or hand control panel	Check fit of connector
	Defective fuse in stand column	Remove plate (item 3, page 8) and insert new fuse
	Defective motor or control panel	Position OPMI by hand in the X-Y directions and contact service department
Motorized height adjustment not functioning	Stop button pressed	Turn stop button
	Defective fuse in stand column	Remove plate (item 3, page 8) and insert new fuse
	Defective motor or control panel	Focus object using the operating table and contact service department
Motorized height adjustment cannot be stopped with foot or hand control panel	Defective contact in control panel	Press stop button immediately. If possible, move object using the height adjustment of the operating table and contact service department.

Malfunction	Possible cause	Remedy
Illumination not functioning	Halogen lamp not switched on	Switch on knob on stand; or switch on correct switch on control panel
	Defective halogen lamp	Remove defective lamp module and insert spare lamp module
	Lamp module has no contact	Push in lamp module as far as it will go
	Halogen lamp does not fit tightly into lamp module	Insert halogen lamp correctly
	Incorrect connection of hand or foot control panel	Check fit of connector
	Defective thermal cutouts	Press red buttons on carrier arm and check whether cooling fan is running. – If not, thermal cutouts will fail again after a few minutes. Contact service department.
	Defective fiber light guide	Insert new light guide or insert cable of second light guide instead
	Defective fuse in stand column	Remove plate (item 3, page 8) and insert new fuse
	Defective control panel or electronics	Illuminate surgical field with operating lamp and contact service department

Delivery package

S22 Floor Stand, complete, for operation microscopes with FC illumination.

Comprising:	order No.
S22 Floor Stand (1)	305980-0000
12 V/100 W halogen lamp	300079-9040
FC light guide 1.8 m	303481-8101
Small sterilizable rubber cap for OPMI and 3-step magnification changer	305807-0000
(1) also required for USA: set of fuses for S22	305980-9050

Specifications

Electrical

Voltages:	100–110–120–127–220–240 V AC
Line frequency:	50...60 Hz
Power consumption:	900 VA
Ratings of power fuses:	100–127 V T 8 Amp. (slow-blow) order No. 380128-1680
	220–240 V T 4 Amp. (slow-blow) order No. 380127-0270

Dimensions and weights

Vertical range of travel	200 mm
Load:	19 kg
Swivel range of outer carrier arm:	280° ± 140°
Swivel range of inner carrier arm:	240° ± 120°
Height of stand (column lowered – bottom edge of carrier arm)	1,470 mm
Height of stand (column raised – bottom edge of carrier arm)	1,670 mm
Total weight:	134 kg
Speed of travel:	20 mm/s
Base:	700×640 mm

Subject to change

Sterilization Methods

Gas (ETO) Sterilization*

Standard ETO is acceptable for use with Kraton* thermoplastic rubber based compounds. The ETO gas will penetrate the Kraton, plasticize it and relieve molded in stresses or imposed stresses on the part.

Aeration time is greatly dependent on the size of the master carton and its permeability. One week is the minimum requirement to bring the ETO residuals below 1 PPM, as tested by the standard liquid extraction method. If the product is heated to 125-135 F in an aeration chamber with high airflow, the time can be accelerated to as little as four days.

Gamma Sterilization*

Kraton thermoplastic rubber can be sterilized using gamma radiation without suffering a large loss in physical properties even after extended storage.

Kraton G-2705 rubber was exposed to Cobalt 60 radiation doses of 3, 6, and 12 Mrads. The table below shows the effect of the radiation on the tensile properties of the material after being aged for 21 months.

Property	Original	0 Mrads	3 Mrads	6 Mrads	12 Mrads
Hardness, Shore A	55	50	48	48	43
Tensile Strength, psi	1200	+8%	+12%	-3%	-15%
300% Modulus, psi	350	+3%	-4%	-10%	-15%
Elongation, %	700	+3%	+10%	+8%	+12%

Steam Sterilization*

GLS Corporation can suggest the following maximum autoclave cycles for selected materials**

250 F for 17 minutes

240 F for 27 minutes.

There will be some slippage or creep with any Kraton thermoplastic rubber based products at these temperatures because of the relieving of molded in stress and the relaxation of imposed stresses. To minimize these effects, parts should be molded at the suggested processing conditions, and not autoclaved while being subjected to outside mechanical stresses.

* Information pertains only to Kraton G-based compounds
** Information pertains only to Kraton G-2705 compound.

Disposables

Spare Bulbs

Endure Number		
90-1200	Zeiss 6V 30W Bt58Z	390158
90-1201	Zeiss 6V 50W Bt86Z	390186
90-1202	Zeiss 12V 100W HLX #64626	380075 1020
90-1203	EFR Housing #900	
90-1204	Zeiss 15V 150W EFR	310198
90-1205	Zeiss 12V 100W HLX #64627	380079 9040
90-1206	Zeiss Superlux 40	
90-1207	Zeiss Superlux 175	
90-1208	Zeiss Superlux 300 with Cartridge	
90-1209	Zeiss Superlux 300 Bulb Only - No Housing or Meter	
90-1302	ELS 150 21V 150W EKE	
90-1400	ELS 250 24V 250W ELC	
90-1403	ELS 24 60V 24W Metal Halide	
90-1402	ILO 300W with Cartridge	

Sterilizable Knob Covers

91-0100	Zeiss Knob Cover, MD Zoom	302602 0203
91-0101	Zeiss Knob Cover, 0-60 PD Adjustment	303418 0000
91-0102	Zeiss Knob Cover, Small, 0-180 PD Adjustment	305810 0000
91-0103	Zeiss Knob Cover, Medium,	305807 0000
91-0104	Zeiss Knob Cover, Magnification Changer	303673 0000
91-0105	Zeiss Knob Cover, Large	305803 0000
91-0106	Zeiss Knob Cover, Extra Large	303674 0000
91-0110	Zeiss Handle Cover, CS/MD Short	302501 9060
91-0111	Zeiss Handle Cover, CS/MD Long	302627 9001
91-0112	Zeiss Handle Cover, F-Cover	305808 0000
91-0113	Zeiss Handle Cover, Pro Magis	
91-0114	Zeiss Hande Cover for MDU Post	305809 0000

Dust Covers

92-0010	Dust Cover, Large

Foot Control Covers

92-0200	Endure Poncho Disposable Foot Control Cover, 20 per Case

Drapes

93-8222	Sterile Drape, 50/180cm, 20/70", Zeiss 48mm, Zeiss OPMI 1/OPMI 6 w/o Side Observer, 20 per Case
93-8214	Sterile Drape, 115/180cm, 45/70", Zeiss 48mm, Zeiss OPMI 1/OPMI 6 w/Side Observer, 20 per Case
93-8296	Sterile Drape, 115/300cm, 45/118", Zeiss 65mm, MD/CS/11/111/ORL/Pro Magis/Neuro/ VISU 150/VISU 200, 20 per Case